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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,543	11/26/2003	John R. Wootton	09813970-1635	9738
26263 7590 03/17/2010 SONNENSCHN NATH & ROSENTHAL LLP P.O. BOX 061080 WACKER DRIVE STATION, WILLIS TOWER CHICAGO, IL 60606-1080				
EXAMINER				
HANDAL, KAITLY V				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
03/17/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/723,543

Applicant(s)

WOOTTON ET AL.

Examiner

KAITY V. HANDAL

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/22/2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 18-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gee (US 2,630,378) in view of Wright et al. (USP 5,141,823).

Regarding claims 18-35, Gee discloses an apparatus for generation of synthesis gas comprising: a hydrocarbon (15), a water feed (34); a supercritical water (SCW) reactor (19); further including an oxygen feed (10) into the SCW reactor (19) (Gee reactor operates under supercritical temperature pressure conditions) (col. 4, lines 17-31 and col. 6, lines 72-col. 7, lines 1-2); a water-gas-shift reactor (col. 2, lines 10-20); at least one preheater (17 & 18) (as illustrated) in thermal communication with

said water feed (34) and said fuel (15) (Gee does teach that the oxygen stream comprises also a percentage of water/high temperature steam) (col. 2, lines 42 – col. 3, line 1 and col. 4, lines 65 - col. 5, line 2), and configured to heat water from said water feed (34) and fuel from said fuel feed (15) to a predetermined temperature (200-800°F) equal or greater than the critical temperature of water (=374°C) (Gee's temperature range above overlaps with the instantly claimed temperature range) before the water and the fuel are mixed (as illustrated) (col. 4, lines 17-22); the preheated fuel, air and water continue to mix in mixing means/(near the inlet of reactor (19)); also, Gee illustrates that water (34) can premix with oxygen (10) (via line 33) and that fuel (15) can premix with oxygen (10) (inside 13), which is similar to the instantly claimed mixing means (see instant specification, page 11, last 4 lines).

Gee further teaches wherein his apparatus comprises a sensor and control system for monitoring at least one of said synthesis gas and said output gas and adjusting said feeds based on said sensing – Gee is concerned with hydrogen yields, he explains that the maximum desirable hydrogen yield is dependent upon the reaction temperature in reactor (14) which is in turn dependent upon the O/C ratio; therefore, the feed rates of oxygen, steam, and hydrocarbon need to be controlled (see for example col. 3, lines 17-56). Therefore, it would be obvious that the apparatus disclosed in Gee would require hydrogen sensors (which can comprise a chromatograph) in order to provide the data necessary for controlling the reaction temperature via controlling the feed rates.

While the reference teaches that the produced synthesis gas can be used for hydrocarbon synthesis (col. 2, lines 10-20), it does not disclose another means of using said synthesis gas for energy generation, namely using it in a fuel cell. Since to use of synthesis gas resulting from hydrocarbon reforming in a fuel cell was well known in the art at the time of the invention, as evidenced by Wright et al. (see for example abstract), it would have been obvious to one having ordinary skill in the art at the time of the invention to use said generated synthesis gas of Gee in the fuel cell of Wright et al., as doing so would have amounted to nothing more than to use a known material for its intended use in a known environment to accomplish an entirely expected result. Further examiner notes that an apparatus is not patentable where it is an obvious combination of two known elements, wherein each element lends to end products the desirable properties that each is known to produce when used alone and there exists no evidence of co-action between the elements that produces unexpected results. See *In re Fortess and Schoeneberg*, 152 USPQ 13 (CCPA 1966).

Wright additionally discloses that to use synthesis gas in a fuel cell, the system needs to include a water-gas shift reactor (C5/L62-68 and C7/L50-65) and a capturing system to temporarily store that hydrogen gas before supplying it to the fuel cell (C 1/L54-C2/L5).

Regarding limitations recited in claims 18-35 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device (as described by including claim limitations in process language versus structural

limitations) nor material or article worked upon (diesel fuel) further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Response to Arguments

4. Applicant's arguments with respect to claims 18-35 have been considered but are moot in view of the new ground(s) of rejection necessitated by Applicant's amendment to the claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAITLY V. HANDAL whose telephone number is (571)272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KAITY V. HANDAL/
Examiner, Art Unit 1795

3/6/2010
